

Assessing the Survival Time of Hospitalized Patients in Eastern Ethiopia During 2019-2020 Using the Bayesian Approach: A Retrospective Cohort Study

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Abstract : Background and Aims: Severe acute malnutrition remains a significant health challenge, particularly in low- and middle-income countries. The aim of this study was to determine the survival time of under-five children with severe acute malnutrition. Methods: A retrospective cohort study was conducted at a hospital, focusing on under-five children with severe acute malnutrition. The study included 322 inpatients admitted to the Chiro hospital in Chiro, Ethiopia, between September 2019 and August 2020, whose data was obtained from medical records. Survival functions were analyzed using Kaplan–Meier plots and log-rank tests. The survival time of severe acute malnutrition was further analyzed using the Cox proportional hazards model and Bayesian parametric survival models, employing integrated nested Laplace approximation methods. Results: Among the 322 patients, 118 (36.6%) died as a result of severe acute malnutrition. The estimated median survival time for inpatients was found to be 2 weeks. Model selection criteria favored the Bayesian Weibull accelerated failure time model, which demonstrated that age, body temperature, pulse rate, nasogastric (NG) tube usage, hypoglycemia, anemia, diarrhea, dehydration, malaria, and pneumonia significantly influenced the survival time of severe acute malnutrition. Conclusions: This study revealed that children below 24 months, those with altered body temperature and pulse rate, NG tube usage, hypoglycemia, and comorbidities such as anemia, diarrhea, dehydration, malaria, and pneumonia had a shorter survival time when affected by severe acute malnutrition under the age of five. To reduce the death rate of children under 5 years of age, it is necessary to design community management for acute malnutrition to ensure early detection and improve access to and coverage for children who are malnourished.

Keywords : Bayesian analysis, severe acute malnutrition, survival data analysis, survival time

Conference Title : ICCNH 2024 : International Conference on Clinical Nutrition and Health

Conference Location : Rome, Italy

Conference Dates : August 22-23, 2024